

# ROLE OF MONITORING IN A FULLY INTEGRATED INVASIVE PLANT MANAGEMENT PROGRAM

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Maui, Hawaii





EVERGREEN











United States Department of Agriculture  
Animal and Plant Health Inspection Service  
Plant Protection and Quarantine



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## APHIS Regulated Pest List

United States Department of Agriculture  
Animal and Plant Health Inspection Service

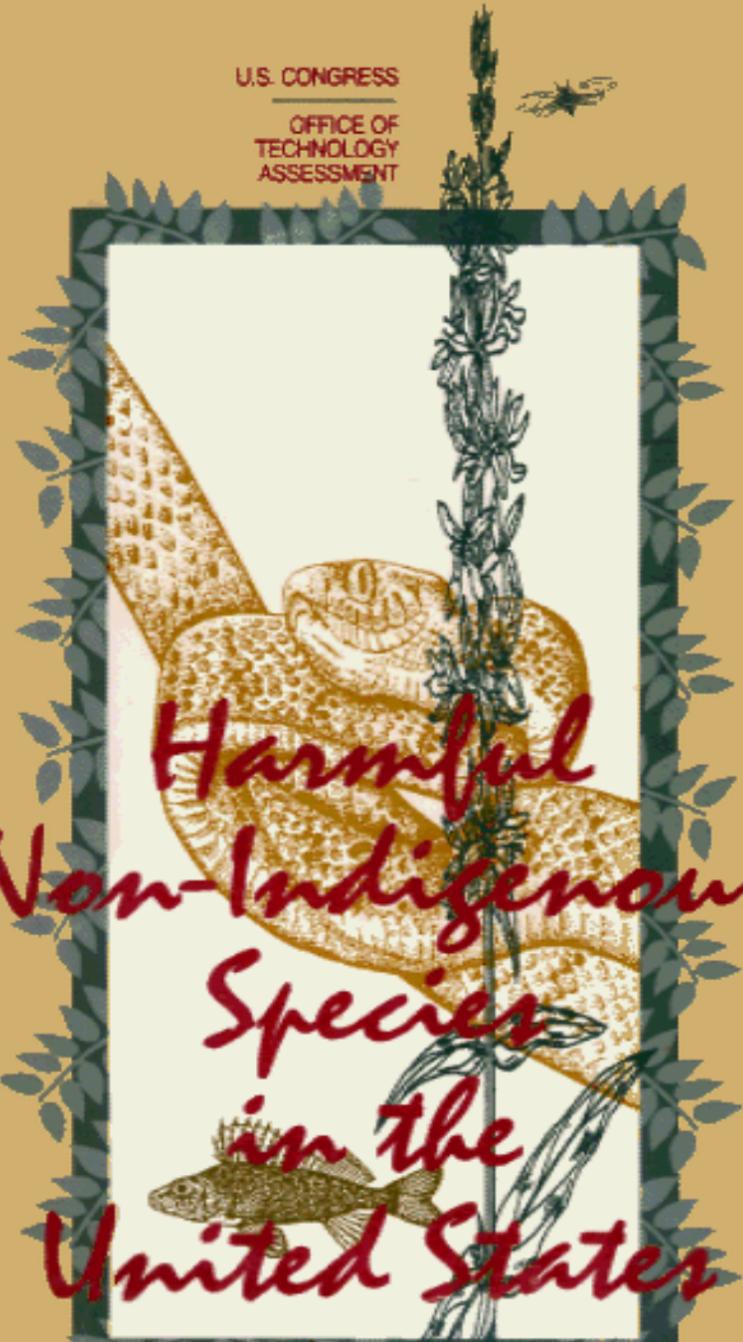
**Purpose:** To provide trading partners an official USDA-APHIS list of Regulated Plant Pests of concern to the US, and to provide focus to APHIS' safeguarding activities including pre-clearance inspection at ports of entry, exotic pest surveys, and eradication activities.

**Legal Basis:** The World Trade Organization's Sanitary and Phytosanitary agreement, ratified April 1996, requires that countries strive towards transparency in their actions with trade partners. The rationale is that through greater transparency, better information is made available, and unjustified phytosanitary trade barriers will be revealed, challenged, and eliminated.



U.S. CONGRESS

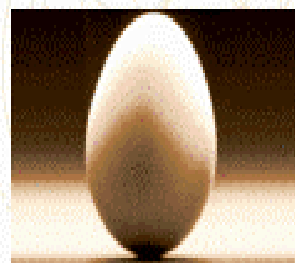
OFFICE OF  
TECHNOLOGY  
ASSESSMENT



*Harmful  
Non-Indigenous  
Species  
in the  
United States*

UNITED STATES POSTAL SERVICE  
HONOLULU HAWAII 96820

Matso

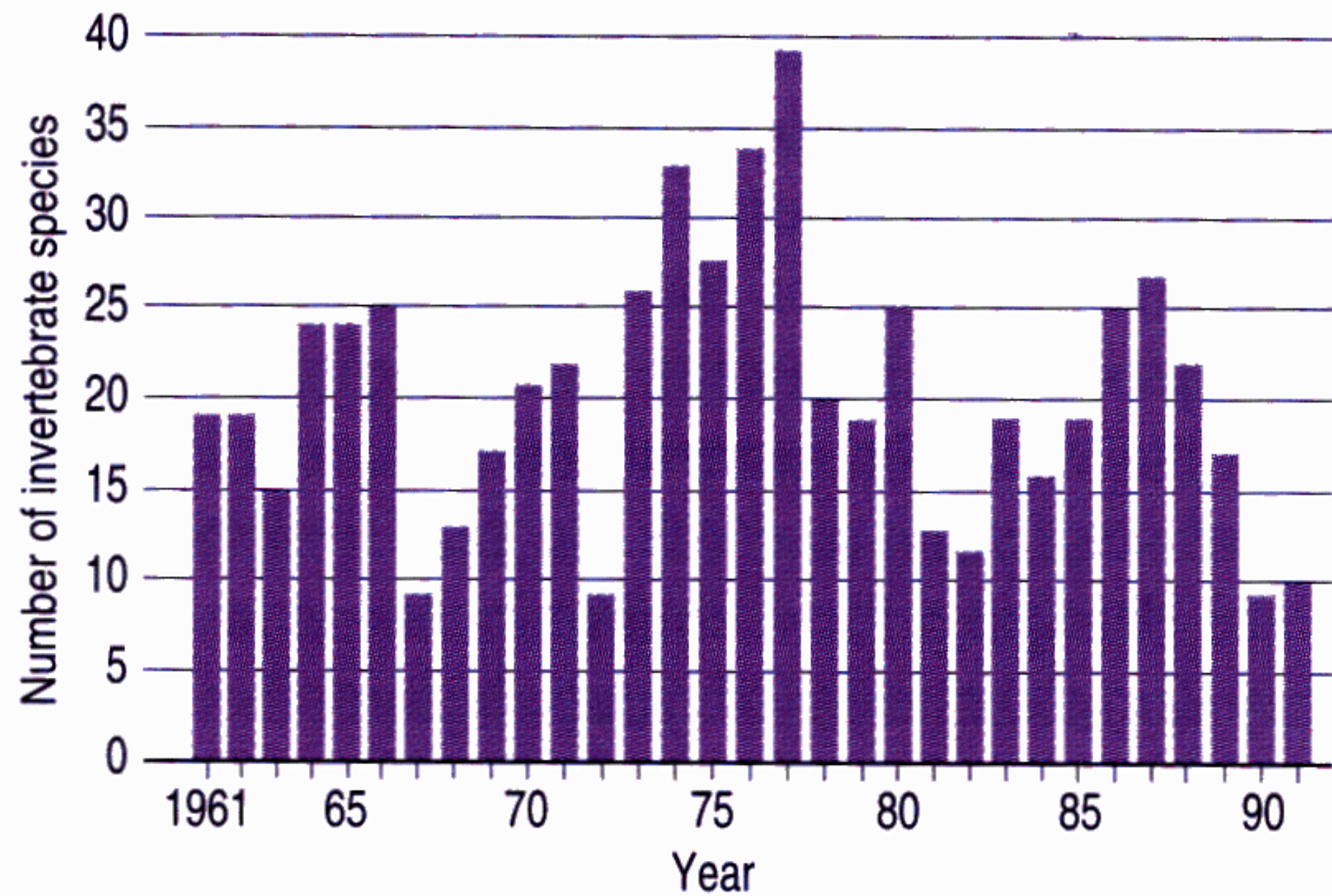


## SANITARY AND PHYTOSANITARY MEASURES: INTRODUCTION

# Understanding the WTO Agreement on Sanitary and Phytosanitary Measures

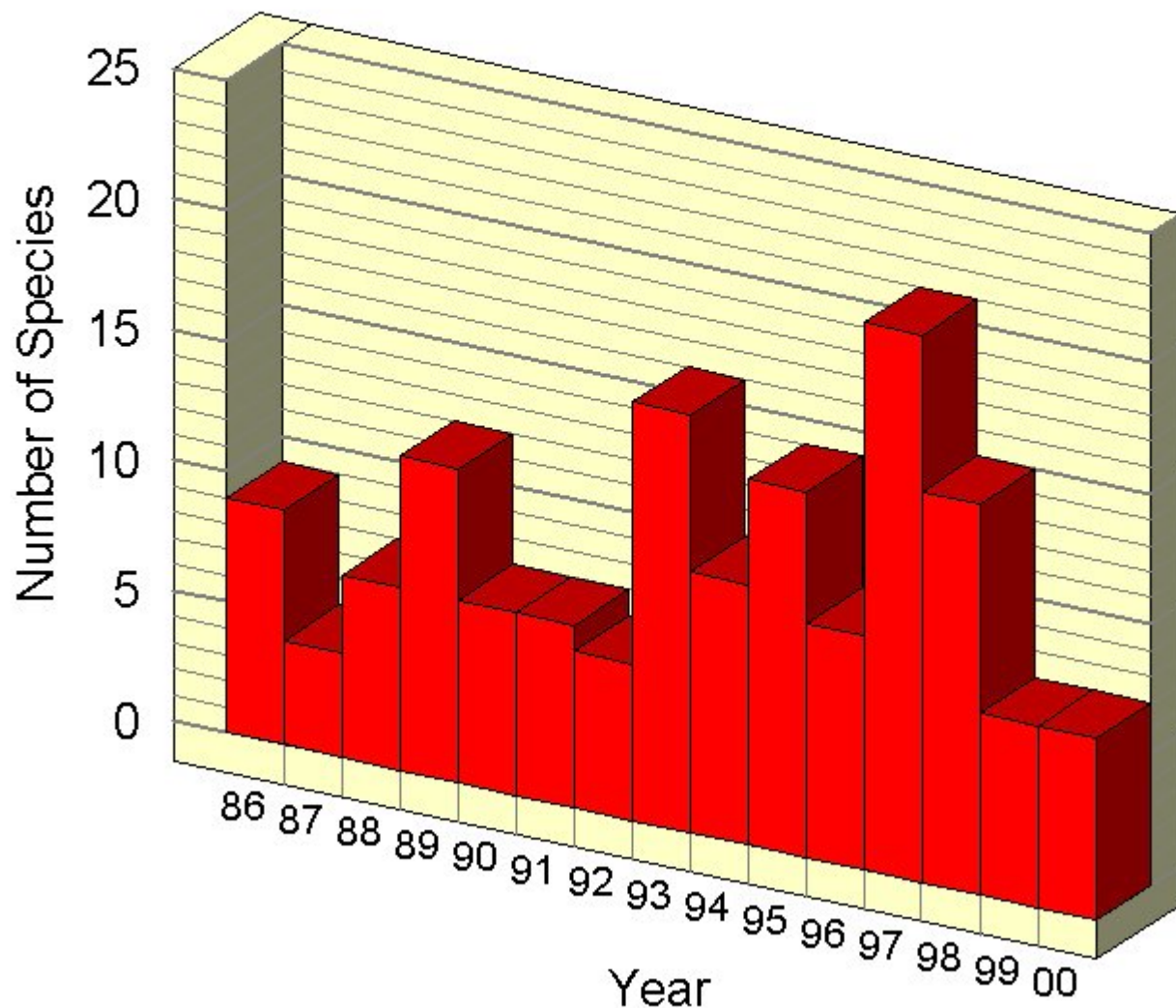
May 1998

The **Agreement on the Application of Sanitary and Phytosanitary Measures** (the "SPS Agreement") entered into force with the establishment of the World Trade Organization on 1 January 1995. It concerns the application of food safety and animal and plant health regulations.



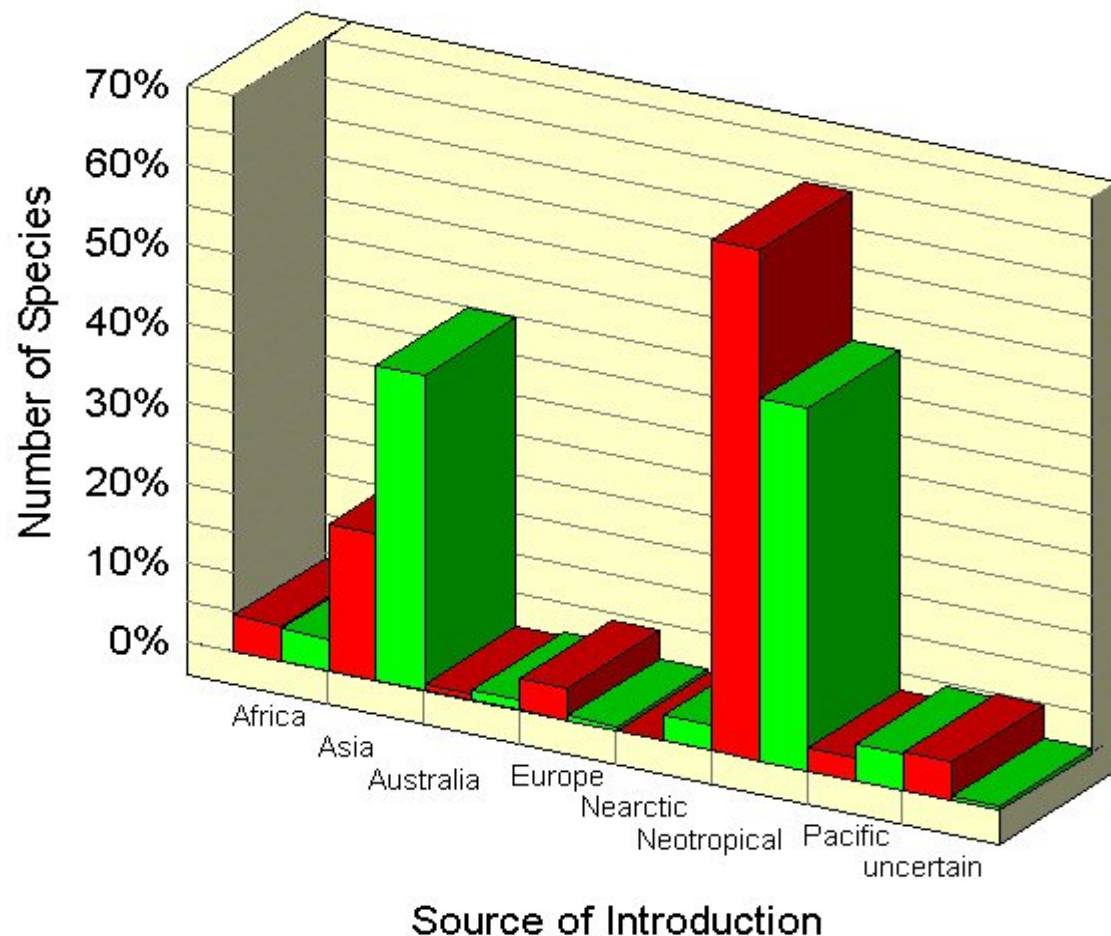
# The Exotic Invasion of Florida

Immigration by Year 1986-2000



# The Exotic Invasion of Florida

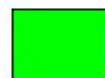
## Sources of Invaders



SOURCE: Frank, J.H., and E.D. McCoy.  
1992. The immigration of insects to Florida,  
with a tabulation of records published since  
1970. Fla. Ent. 75: 1-28.



1970-1989



1986-2000

Symposia at ESA, San Diego,  
Dec.9-10, 2001

Regulatory Entomology

How effectively is American  
agriculture being protected?

Some accuse the system of  
agreement among nations to  
exchange pests.

APHIS: “We’re traders, not traitors.”

“By carefully balancing free trade and legitimate measures for plant protection, countries are able to realize maximum benefit in their efforts toward both protection and facilitation of trade. In this context, facilitating trade and protecting plant health are not conflicting objectives, but rather a single objective – ‘**safe trade.**’”



United States  
Department of  
Agriculture

Forest Service

Forest  
Products  
Laboratory

General  
Technical  
Report  
FPL-33TR-104



# Pest Risk Assessment of the Importation into the United States of Unprocessed *Pinus* and *Abies* Logs from Mexico





United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Monelatedus  
Publication No. 1496

September 1991

# An Efficacy Review of Control Measures for Potential Pests of Imported Soviet Timber







asianl~1.jpg



asianl~2.jpg



asianl~3.jpg



asianl~4.jpg



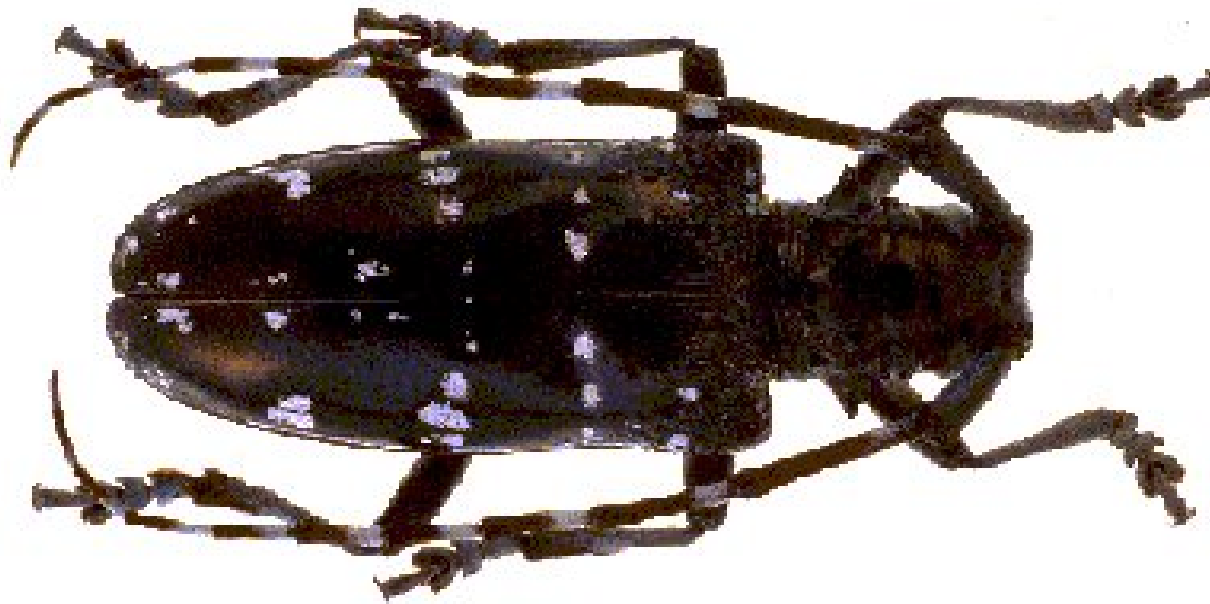
asianl~5.jpg



asianl~6.jpg



asianl~7.jpg



*Anoplophora chinensis*—female



*Anoplophora chinensis*—male

**MAJOR PESTS OF U.S. EASTERN  
DECIDUOUS FOREST (with long lag times)**

Gypsy moth (1869)

White pine blister rust (1898)

Beech bark disease (1911)

Hemlock woolly adelgid (1924)

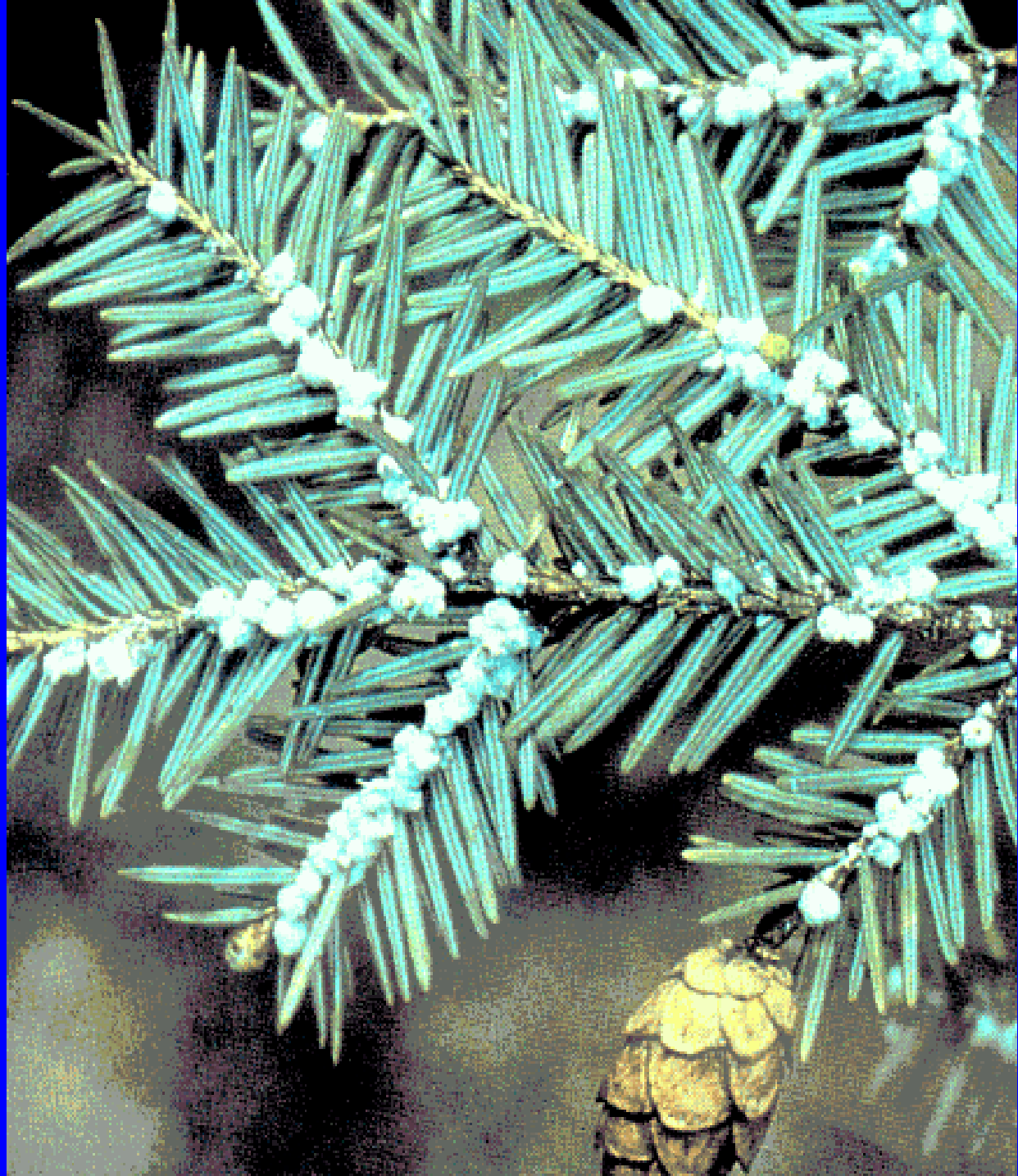
European mountain ash sawfly (1926)

Dutch elm disease (1930s)

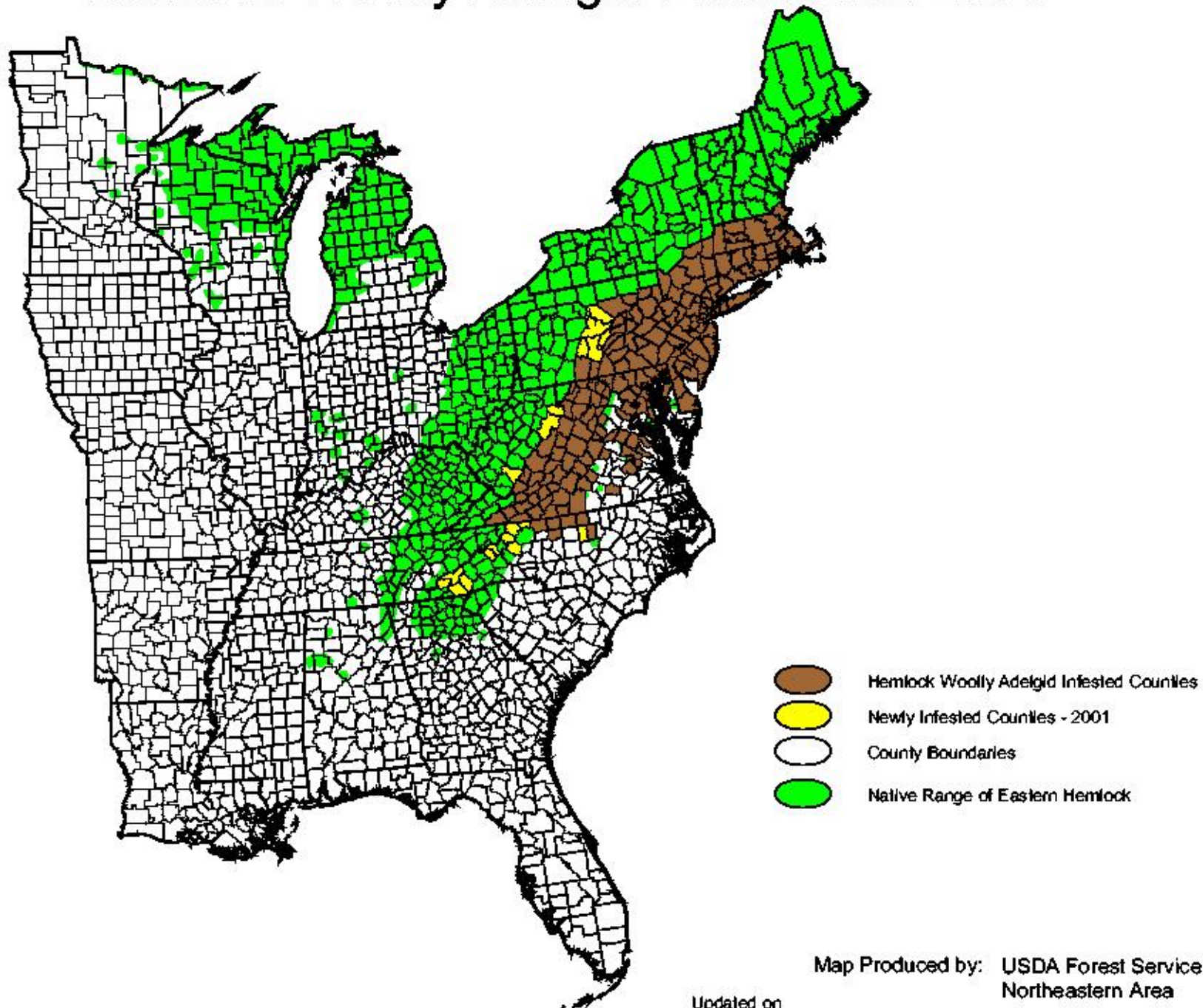
Balsam woolly adelgid (1950)

Butternut canker (1940s?)

Dogwood anthracnose (1970s)



# Hemlock Woolly Adelgid Distribution 2001





# Nemiela and Mattson (1996)

## BioScience 46: 741-753

“When the outrageous economic and ecological costs of the wanton spread of existing exotics and continued entry of new ones become common knowledge, it is inevitable that there will be a public outcry for actions to mitigate the potentially dire consequences.”



# NATURE OUT OF PLACE

Biological Invasions in the Global Age

JASON VAN DRIESCHE and ROY VAN DRIESCHE

Hawaii is special

Hawaii is vulnerable

# How special is Hawaii?

- 90% endemism of flowering plants
- 99% endemism of insects
- textbook examples of adaptive radiation













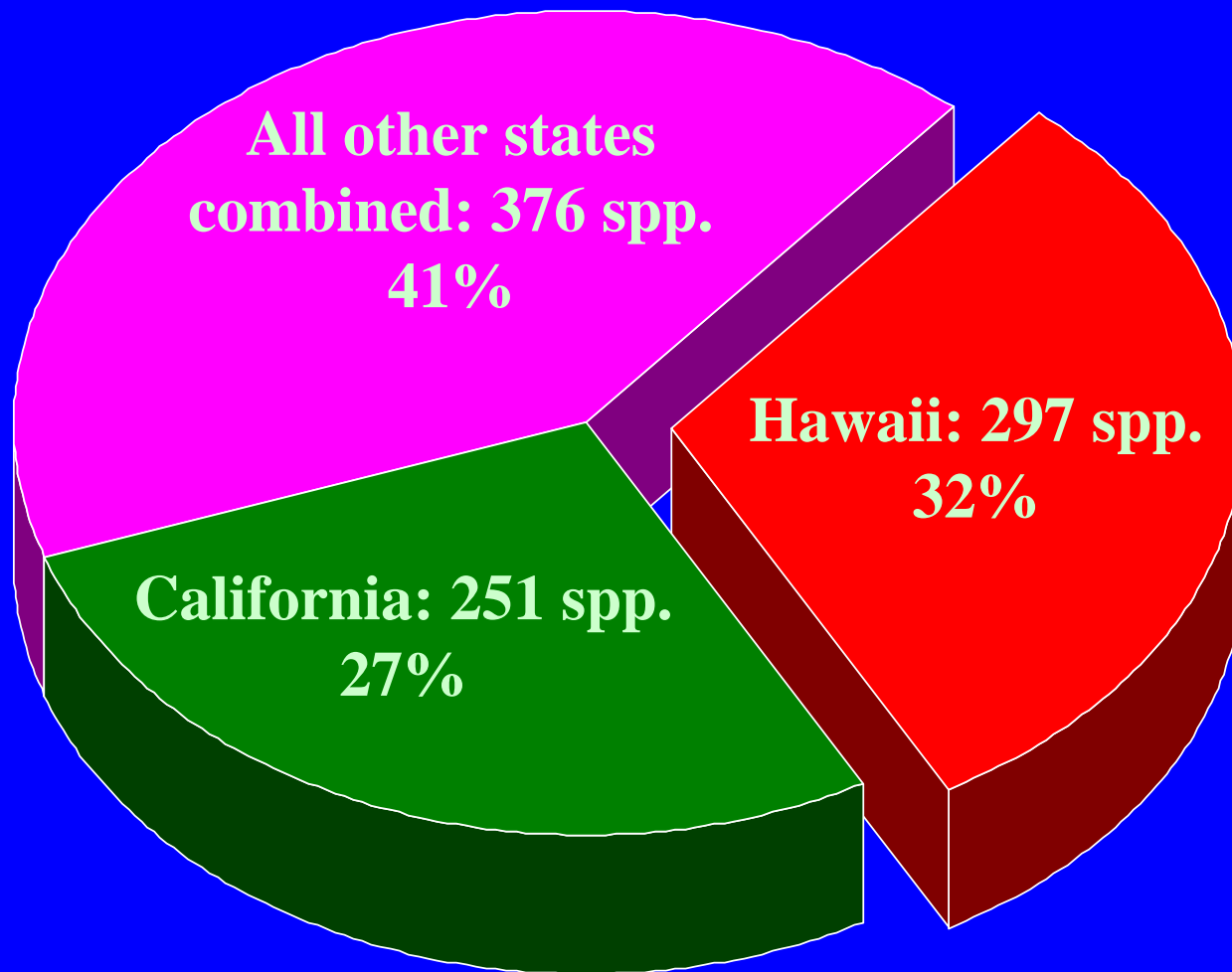








# Number of Endangered or Threatened “Species” in the United States

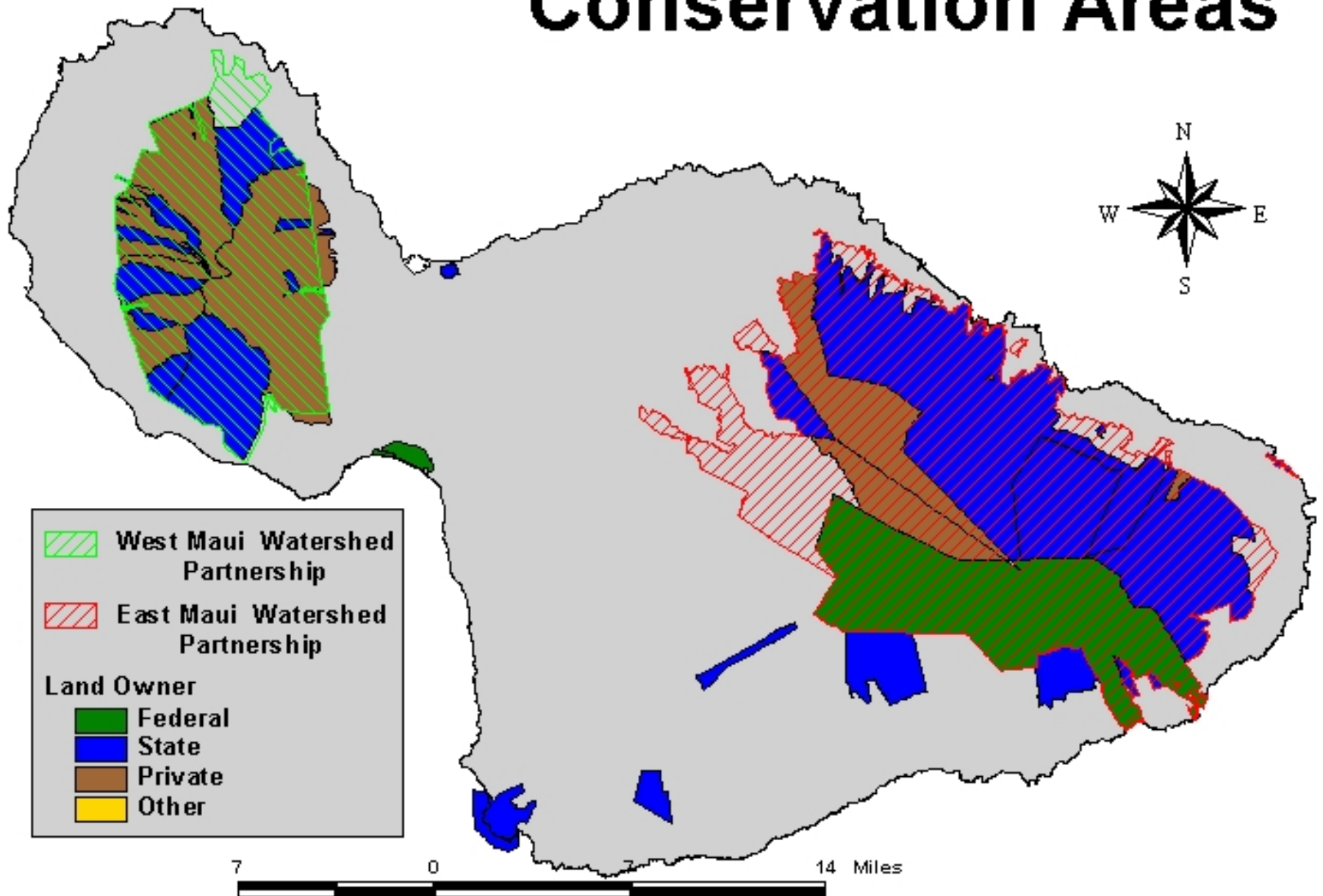


# Haleakala National Park

sea level -- 10,023 ft elevation

- 90% endemism (to Hawaiian Islands) of flowering plants and invertebrates
- 20% endemism (to island of Maui) of flowering plants and invertebrates
- textbook examples of adaptive radiation

# Conservation Areas

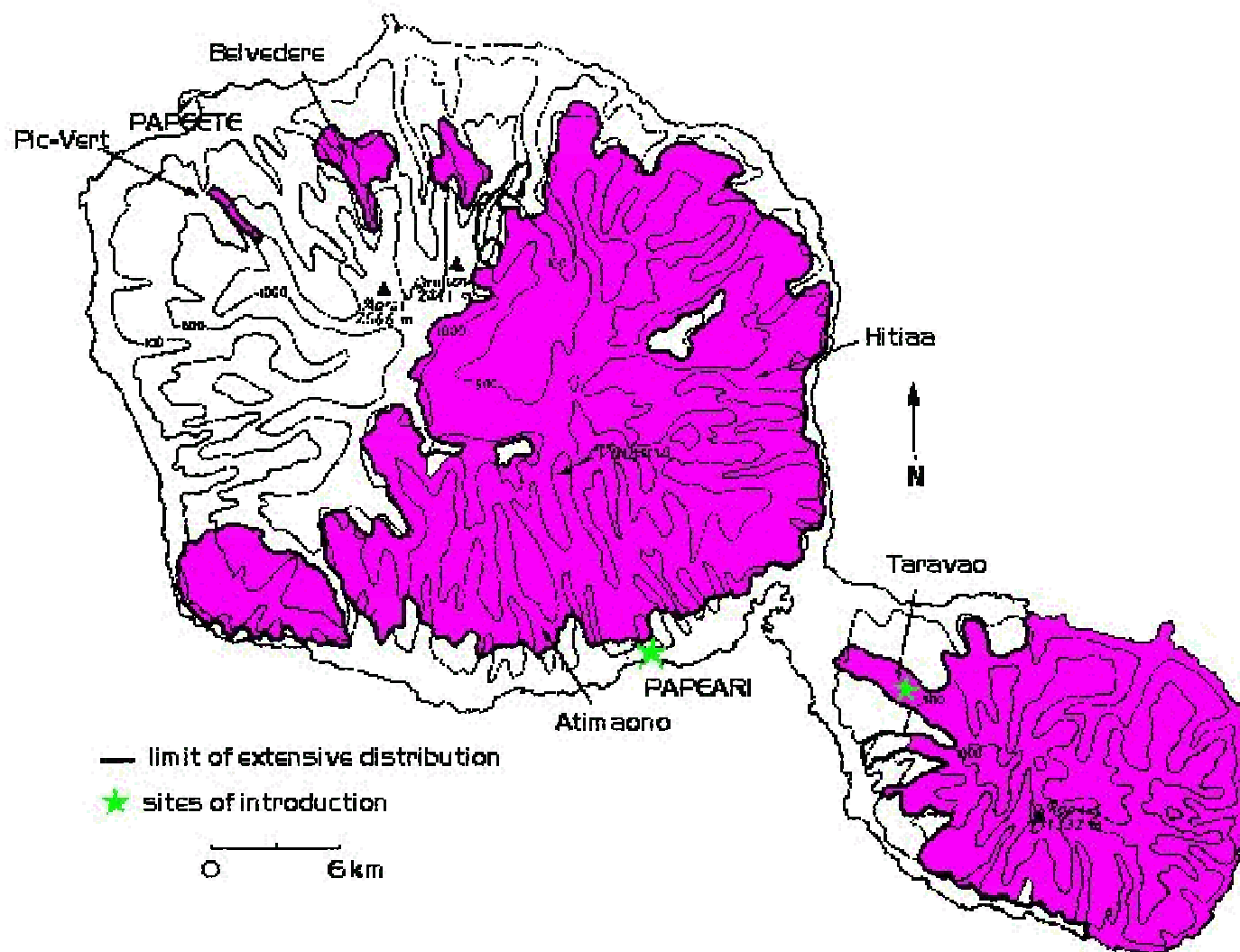










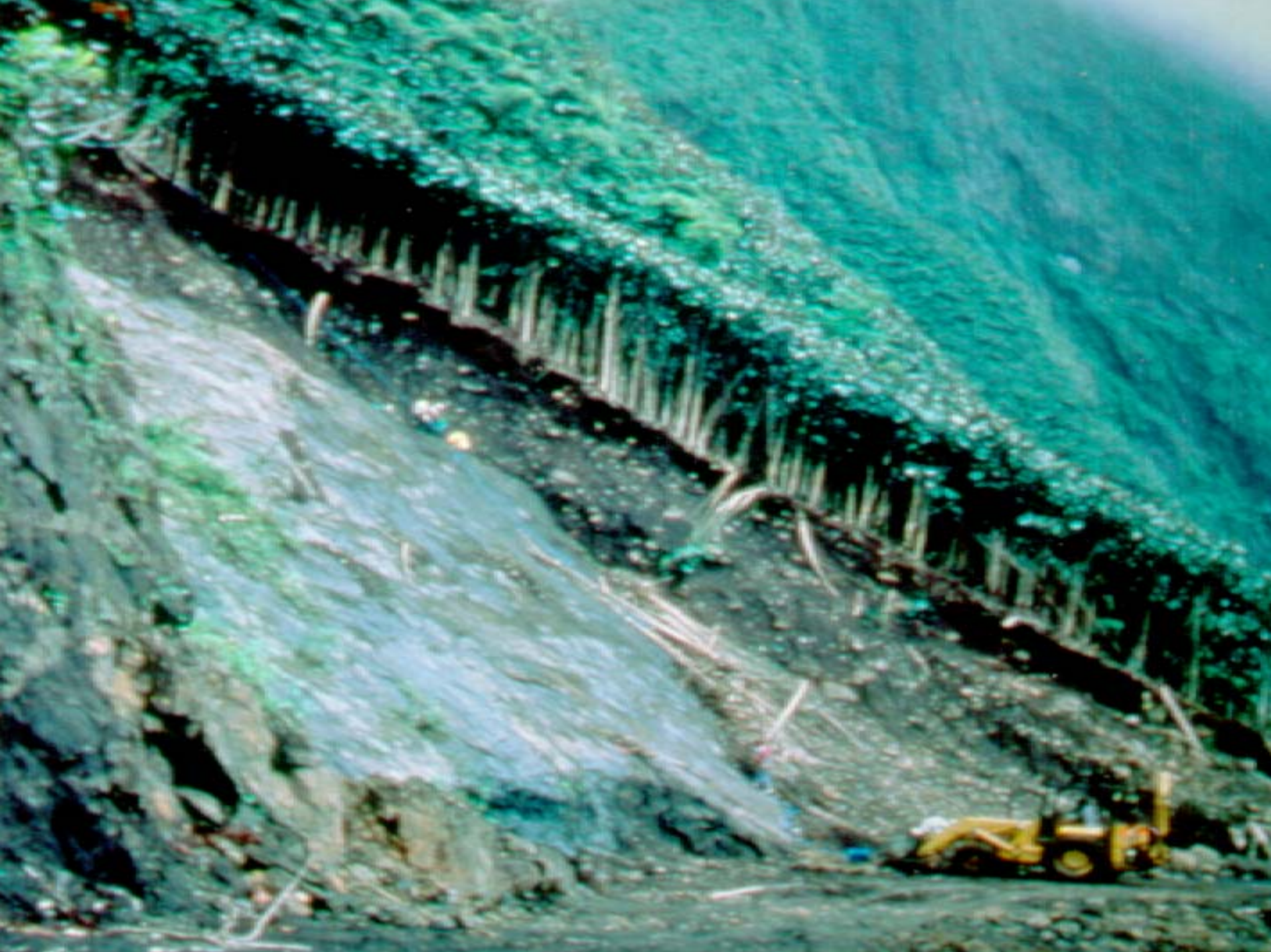












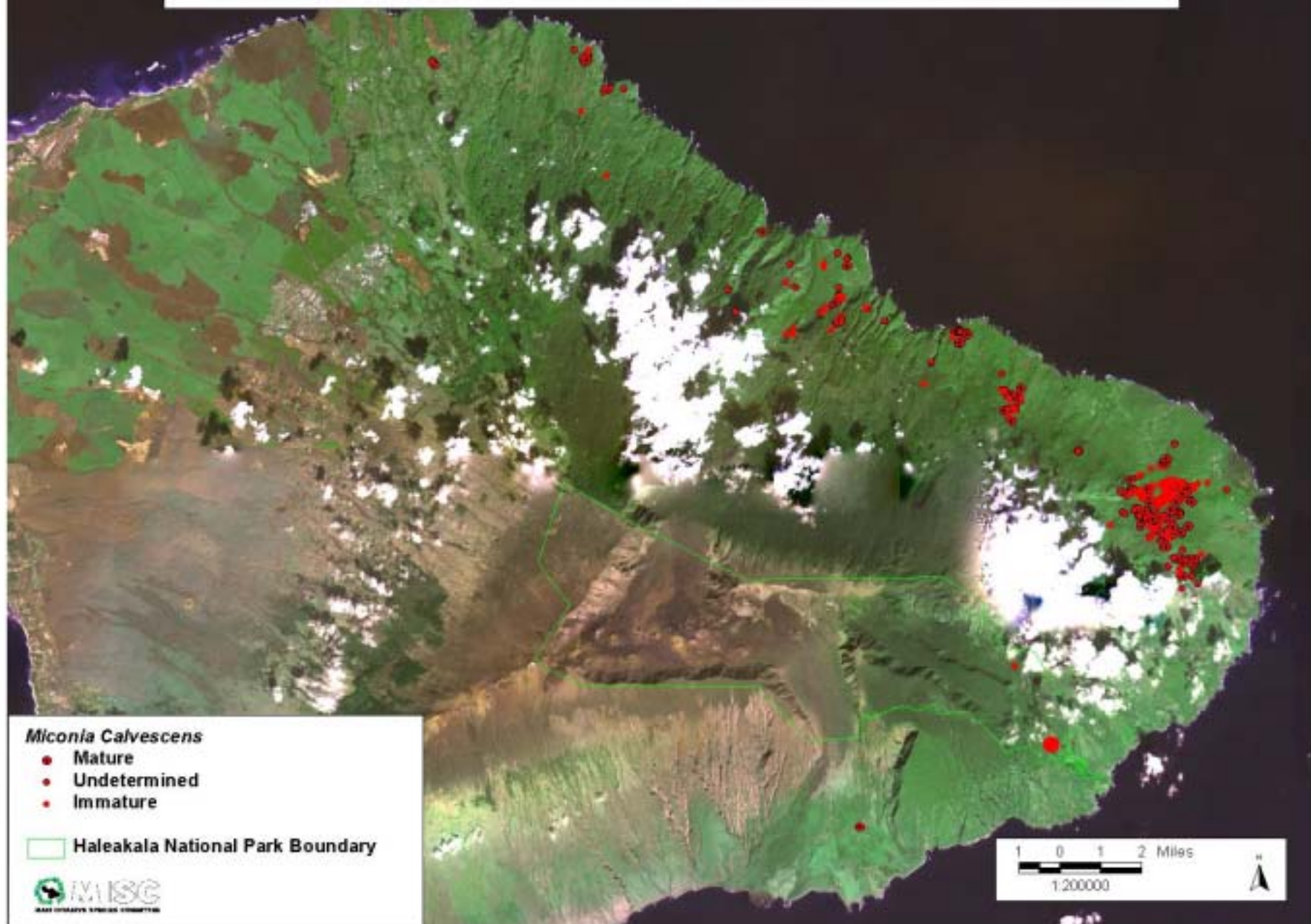




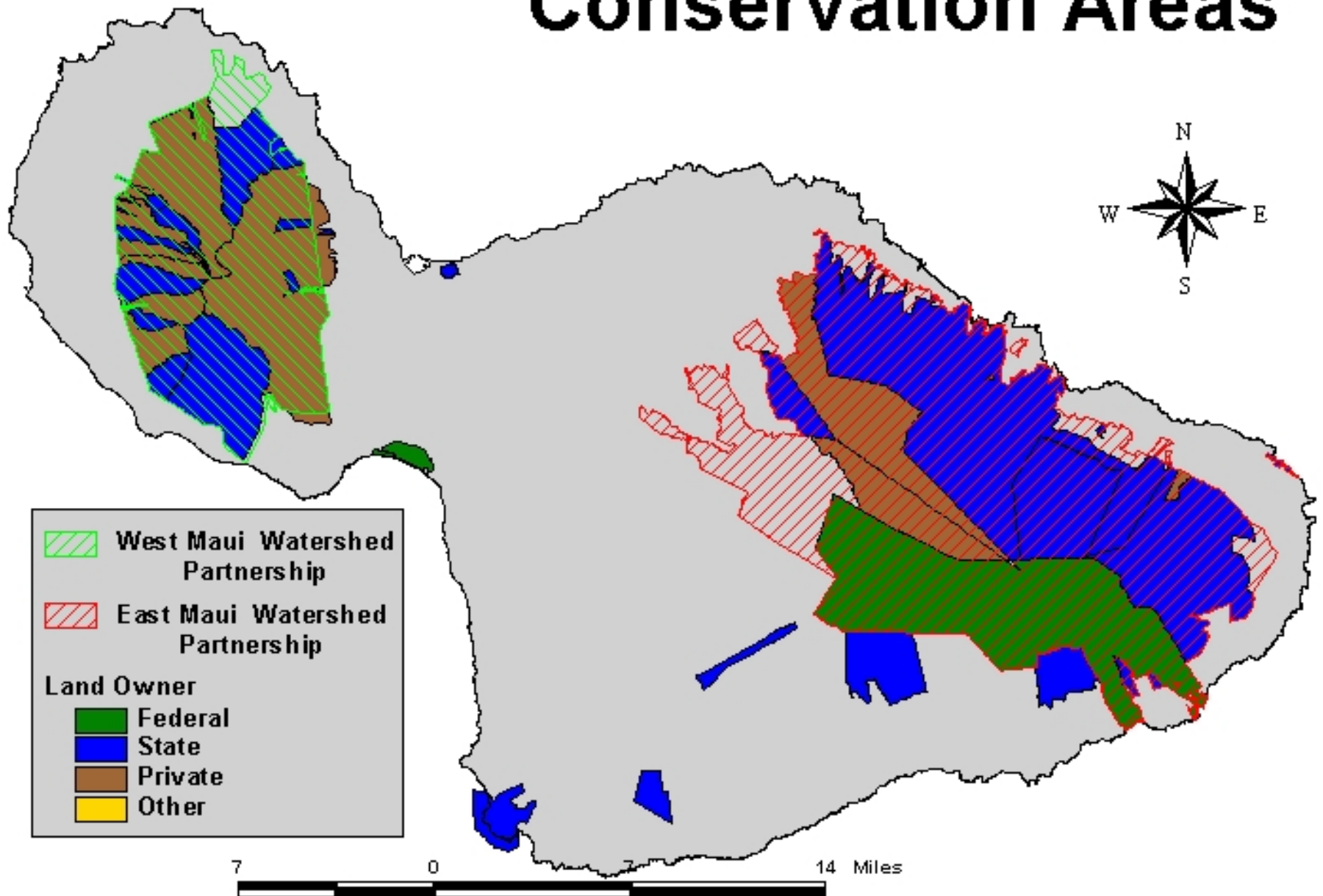


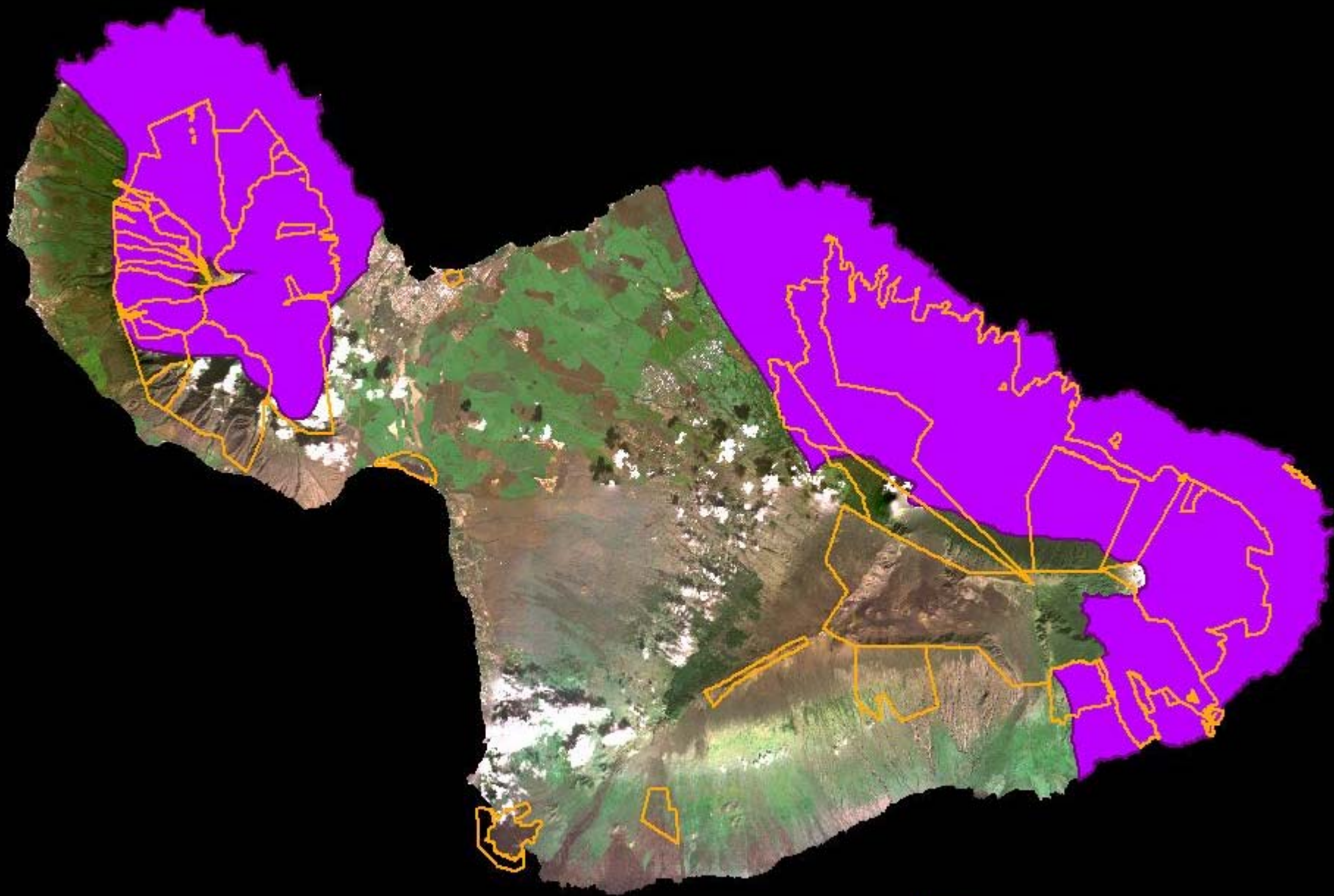


## Current Extent of *Miconia Calvescens* on East Maui



# Conservation Areas





Natural Areas



Potential Miconia Distribution



# Potential positive side for biodiversity?

- Hawaii is in the midst of an invasive species crisis affecting not only the archipelago's highly endemic biota, but also overall environmental/human health and viability of its tourism- and agriculture-based economy.







# Coordinating Group on Alien Pest Species (CGAPS)

Maui Invasive Species Committee (MISC)

Big Island Invasive Species Committee (BIISC)

Oahu Invasive Species Committee (OISC)

Hawaii Ant Group

# MAUI INVASIVE SPECIES COMMITTEE

Haleakala National Park, Hawaii  
Department of Land and Natural  
Resources, Hawaii Department of  
Agriculture, TNC, Maui Land &  
Pineapple Co., USDA Forest Service,  
Maui Department of Water Supply,  
University of Hawaii, Hawaii  
National Guard, Maui County Board  
of Water Supply, USFWS, etc.

# MAUI INVASIVE SPECIES COMMITTEE current targets

Miconia (*Miconia calvescens*)

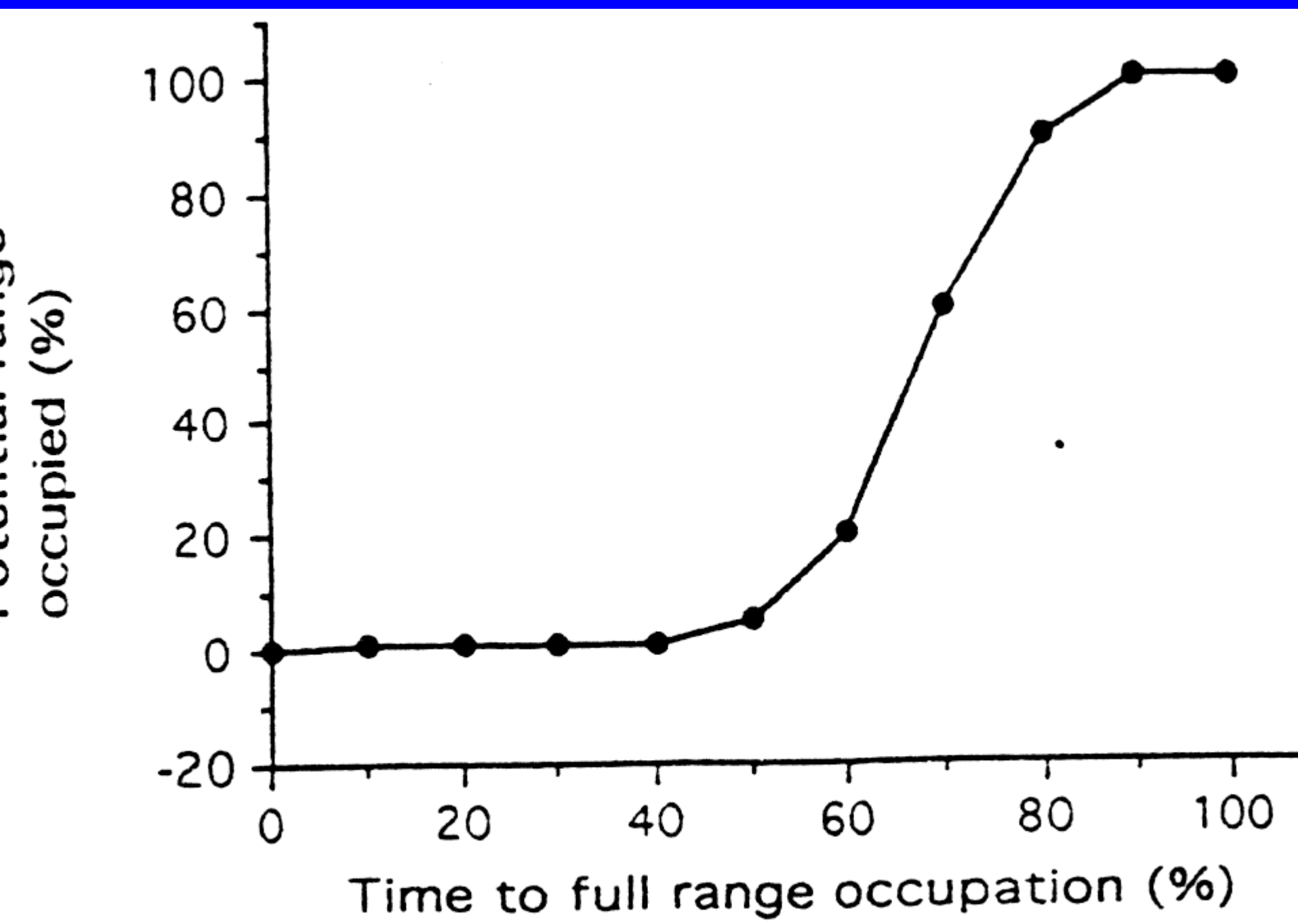
Pampas grass (*Cortaderia jubata*)

Fountain grass (*Pennisetum setaceum*)

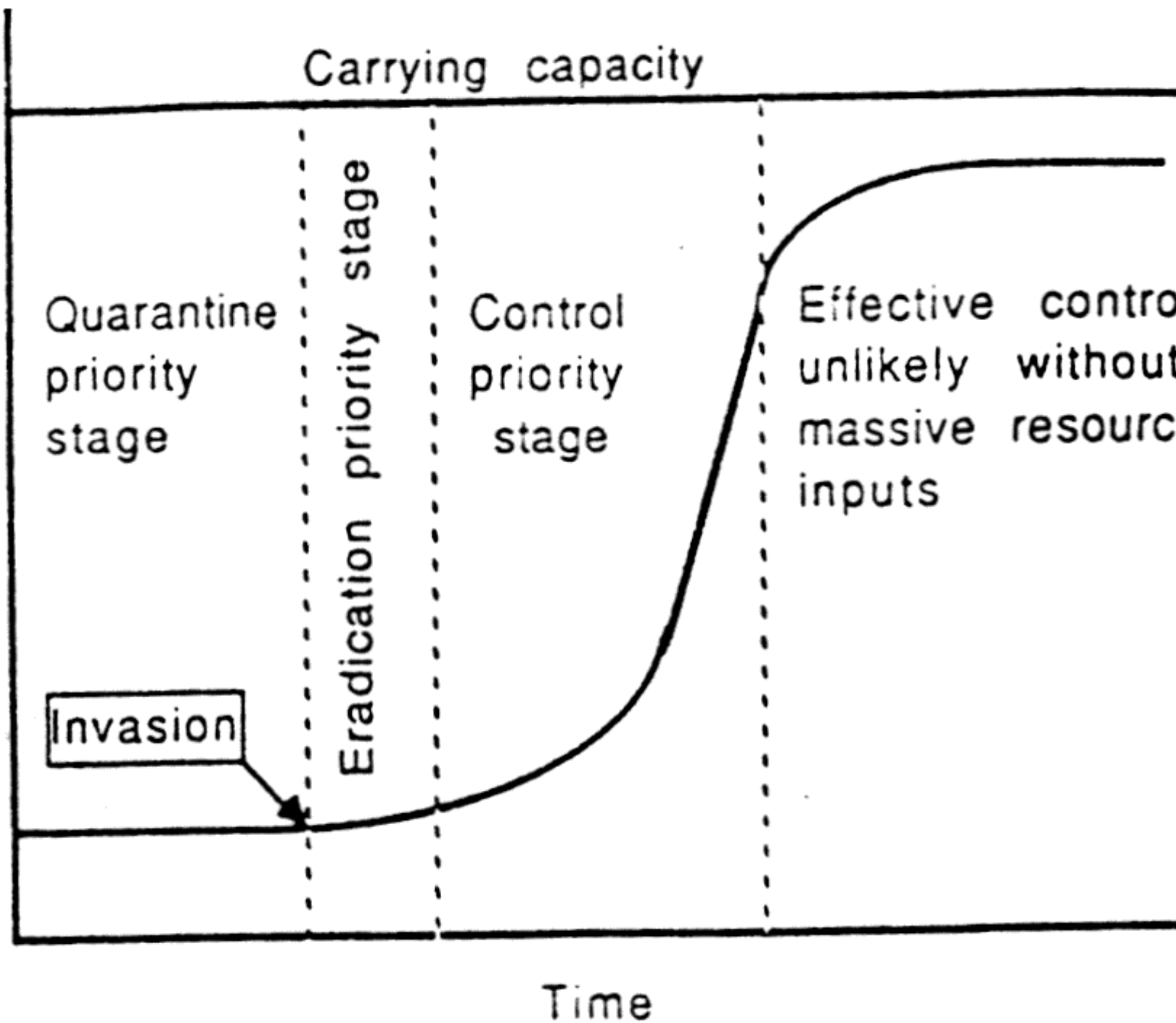
Ivy gourd (*Coccinia grandis*)

Giant Reed (*Arundo donax*)

Rubber vine (*Cryptostegia grandiflora*)



Invader  
abundance



# Hawaiian Ecosystems at Risk project

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*Information on the internet about  
harmful alien species in Hawaii*

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[www.hear.org](http://www.hear.org)



